

Collaborative Large Whale Survey 2015 (CLaWS): End-of-Leg Report: 1-20 September 2015

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Gray whale diving off the coast of Kodiak Island, Alaska. Photo by Bernardo Alps

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Synopsis

The Collaborative Large Whale Survey 2015 (CLaWS) is a joint field effort by Southwest Fisheries Science Center and Alaska Fisheries Science Center. The 4-month survey is devoted to the assessment of several large whale species off the U.S. and Canadian west coast between northern California and Kodiak, Alaska. Major components of this effort include: (1) the first range-wide assessment of gray whales that summer south of the Aleutian Islands, (2) a dedicated visual line-transect and acoustics survey for right whales in the Gulf of Alaska, and (3) sampling (photographic and biopsy) of blue and fin whales. The work is being supported by SWFSC, AFSC, NOAA Fisheries Office of Science & Technology and Office of Protected Resources, NOAA Fisheries' Alaska Regional Office and the U.S. Marine Mammal Commission. The survey started on 9 July from San Diego amid news coverage and excitement about the large whale research and NOAA Ship *Reuben Lasker* undertaking its first scientific project. The 106-day survey will have five legs (tracklines are shown in Figure 1) and is scheduled to end in San Diego on 9 November 2015.

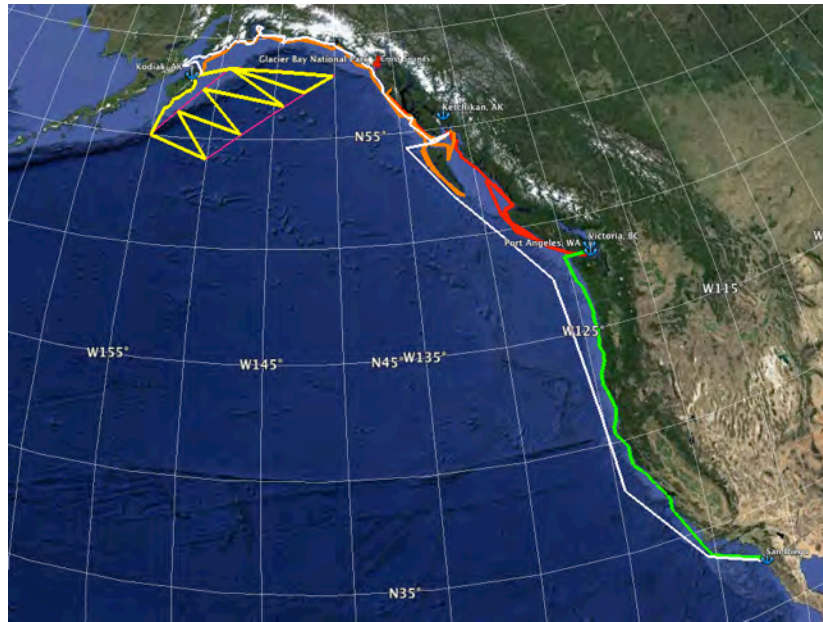


Figure 1. Planned survey track lines: Leg 1 = white; Leg 2 = yellow; Leg 3 = orange; Leg 4 = red; Leg 5 = green.

The plan for CLaWS Leg 3 was to continue survey effort in the waters off Kodiak Island and then head east across the Gulf of Alaska to survey coastal and shelf-break waters off southeastern Alaska. The science party for leg 3 included seven observers: Alyssa Baldo (volunteer, University of California Santa Cruz), Bernardo Alps (volunteer, California Whales & Wildlife and the Cabrillo Marine Aquarium), Elyssa Watford (volunteer, Humboldt State University), Nicole Vollmer (National Systematics Laboratory, NOAA Fisheries), Charlotte Boyd (SWFSC), Eric Archer (SWFSC), and Aimée Lang (SWFSC).

Over 900 nmi were surveyed during Leg 3, including approximately 186 hrs of visual observation effort and 254 cetacean sightings. At the end of Leg 3, Aimée Lang handed over scientific responsibilities to incoming cruise leader Susan Chivers (SWFSC) and an almost entirely new scientific crew; the exception is Sergio Martínez who sailed on Legs 1 and 2.



Figure 2. Leg 3 scientific party, back row L to R: Eric Archer, Aimee Lang, Bernardo Alps; front row, L to R: Elyssa Watford, Nikki Vollmer, Charlotte Boyd, and Alyssa Baldo.

Marine Mammal Observations:

The first week of Leg 3 (1-6 September) was spent surveying the waters off Kodiak Island, Alaska. Most of this time was dedicated to small boat work aimed at collecting photographs and biopsies from gray whales in the nearshore waters of Ugak Bay, in the same general area that gray whale sightings were made during Legs 1 and 2. In addition, a couple of days were spent surveying the waters near the Barnabas Trough, where right whale calls were recorded during Leg 2. Although sightings of killer whales, Pacific white-sided dolphins, Dall's porpoises, and humpback whales were made, no right whales were sighted during this time.

At the beginning of week 2 (7-13 September), we headed further offshore to an area where multiple blue whales were sighted during Leg 2. Although no blue whales were found, we were able to photograph several fin whales before heading back towards shore to wait out the first gale of this leg in the lee of the Barren Islands. After the gale passed, we began our transit across the Gulf of Alaska toward Yakutat Bay, and ended the week with numerous harbor porpoise sightings inside the Bay as well as an intimate view of the Hubbard Glacier.

The final week of Leg 3 (14-19 September) began with a survey of the coastal waters between Yakutat Bay and Sitka Sound in search of gray whales. As in Leg 1, no gray whales were sighted in this area. We then headed offshore to the shelf break with the hope of finding sperm whales. Multiple humpback and fin whales appeared to be feeding in these

waters, but no sperm whales were found. Unfortunately, our time surveying the shelf break was limited by the approach of yet another gale, forcing us back toward the coast and the shelter of Sitka Sound. Unexpectedly, conditions improved markedly for the last two days of the survey, with high swell but sunny skies and relatively low winds as we surveyed from Sitka Sound south to Dixon Entrance. The majority of sightings during these two days were of humpback and fin whales. We ended our Leg 3 efforts working with a group of ~45 fin whales in the waters on the U.S. side of Dixon Entrance.



Figure 3. NOAA ship *Reuben Lasker* working off Alaska with the Hubbard Glacier in the background. Photo by Bernardo Alps.

Table 1. Cetaceans documented during Leg 3.

CODE	SPECIES	Common Name	TOT#
22	<i>Lagenorhynchus obliquidens</i>	Pacific white-sided dolphin	5
37	<i>Orcinus orca</i>	Killer whale	4
40	<i>Phocoena phocoena</i>	Harbor porpoise	30
44	<i>Phocoenoides dalli</i>	Dall's porpoise	22
46	<i>Physeter macrocephalus</i>	Sperm whale	1
69	<i>Eschrichtius robustus</i>	Gray whale	10
74	<i>Balaenoptera physalus</i>	Fin whale	18
76	<i>Megaptera novaeangliae</i>	Humpback whale	82
77	Unid dolphin	Unidentified dolphin	1
79	Unid large whale	Unidentified large whale	81
Total			254

Table 2. Search effort by day.

Date	Time (Start/End)	Latitude	Longitude	Distance surveyed (nmi)	Average Beaufort
090115	1409	N57:44.00	W152:22.53	16.6	3
	1718	N57:22.31	W152:08.90		
090215	746	N57:23.14	W152:29.39	5.1	2.3
	942	N57:18.27	W152:26.65		
090315	1600	N57:19.63	W152:22.92	5.4	5
	1647	N57:13.82	W152:28.93		
090415	734	N56:10.98	W152:21.27	60.4	3.4
	1606	N56:36.00	W152:43.59		
090515	737	N56:32.13	W152:58.34	38.5	2.9
	1310	N57:13.71	W152:26.90		
090615	731	N57:19.81	W152:23.69	56.5	2.6
	1840	N56:11.43	W152:03.02		
090715	733	N53:41.93	W151:35.48	41.5	2
	1820	N53:58.73	W152:48.59		
090815	734	N54:29.63	W151:27.47	60.3	3.5
	1840	N55:22.10	W150:35.91		
090915	755	N57:59.30	W151:29.95	50.7	4.9
	1334	N58:54.06	W152:27.01		
091015	941	N58:58.01	W152:14.03	70.3	5.5
	1844	N58:59.10	W149:46.04		
091115	738	N59:05.00	W146:17.80	94.8	5.3
	1840	N59:33.36	W143:20.56		
091215	734	N59:49.60	W141:52.24	38.7	2.8
	1232	N59:37.52	W140:34.16		
091315	733	N59:35.23	W139:55.66	66.6	1.7
	1840	N59:13.68	W139:23.24		
091415	731	N59:12.99	W139:20.02	45.8	3.9
	1704	N58:22.95	W136:59.76		
091515	731	N58:09.92	W136:43.80	43.8	3.2
	1742	N57:13.25	W136:03.72		
091615	728	N57:06.49	W135:31.77	57.2	3.1
	1840	N57:33.23	W137:09.22		
091715	734	N57:35.51	W137:12.30	56.7	6
	1846	N57:05.73	W135:31.49		
091815	802	N57:03.33	W135:31.00	76.5	2.7
	1820	N56:01.76	W134:37.73		
091915	729	N55:03.89	W133:23.84	32	2.1
	1550	N54:37.28	W132:29.23		

Biopsy Sampling

Although collecting biopsy samples from gray whales in the waters off Kodiak was challenging, we successfully obtained six samples as part of small boat operations during the first week of Leg 3. These samples will contribute to ongoing SWFSC genetic analyses of gray whales in the North Pacific and will also be valuable in any future studies looking at stable isotopes, contaminants, and/or hormones in these whales.

In addition, we were able to collect five biopsy samples from one of the two Pacific white-sided dolphin groups that we photographed while surveying aboard the Rueben Lasker. The final three samples were collected from fin whales as we neared the end of the Leg 3 survey area in the waters on the U.S. side of the Dixon Entrance. Two of these samples were collected during small boat operations, while the final sample was collected from the bow of the ship while working with what ended up being the last sighting of Leg 3. This sample was temporarily lost at sea when the line tethering the bolt snapped and was only retrieved due to the collaborative efforts of both science and crew.



Figure 4. Successful collection of a biopsy sample from a gray whale off Kodiak Island, AK. Photo by Bernardo Alps.

Table 3. Biopsy samples collected during Leg 1.

Species	Common Name	Samples collected	Comments
<i>Eschrichtius robustus</i>	Gray whale	6	
<i>Balaenoptera physalus</i>	Fin whale	3	
<i>Lagenorhynchus obliquidens</i>	Pacific white-sided dolphin	5	All from same group

Photo-identification

Most of the effort to collect photo-identification data during Leg 3 was focused on gray whales and fin whales. In addition, photos were also collected from two large groups of Pacific white-sided dolphins, two groups of killer whales, and opportunistically from humpback whales. These photographs will be compared to the existing photo-identification

catalogues maintained at SWFSC and by other groups.



Figure 5. Small boat team photographing a fin whale in Alaskan waters. Photo by Charlotte Boyd.

Table 4. Photo-identification data collected during Leg 3 and summarized across all legs to date.

Species Code	Scientific Name	Common Name	# Sightings	# Photos	Total Sightings	Total Photos
22	<i>Lagenorhynchus obliquidens</i>	Pacific white-sided dolphin	2	905	3	1698
36	<i>Globicephala macrorhynchus</i>	Short-finned pilot whale			1	234
37	<i>Orcinus orca</i>	Killer whale	2	94	15	3004
46	<i>Physeter macrocephalus</i>	Sperm whale			1	14
69	<i>Eschrichtius robustus</i>	Gray whale	4	3821	18	6060
74	<i>Balaenoptera physalus</i>	Fin whale	12	3295	17	3395
75	<i>Balaenoptera musculus</i>	Blue whale			4	852
76	<i>Megaptera novaeangliae</i>	Humpback whale	5	118	9	631
99	<i>Balaenoptera borealis/edeni</i>	Sei/Bryde's whale			1	3

Acknowledgments

The CLaWS 2015 project is funded by the National Oceanic and Atmospheric Administration's National Marine Fisheries Service, NMFS Office of Science and Technology, NMFS Office of Protected Resources, NMFS Alaska Regional Office and the Marine Mammal Commission. Doug DeMaster was instrumental in securing funding for this survey. John Ford and Annely Greene generously assisted with Canadian research permits. Chris

Gabriele and Lewis Sharman provided support for obtaining Glacier Bay National Park research permits. Shore-side support in preparation for this cruise was provided in large part by Annette Henry. Additional support, both conceptual and physical, was provided by: Eric Archer, Lisa Ballance, John Bengtson, Jim Carretta, Phil Clapham, John Durban, Lynn Evans, Paul Fiedler, Terry Henry, Roger Hewitt, Robert Holland, Al Jackson, Kelly Jacovino, Kristen Koch, Jeff Laake, Karen Martien, Jeff Moore, Shannon Rankin, Kelly Robertson, Brenda Rone, Jeremy Rusin, Gaby Serra-Valente, Barb Taylor, Wayne Perryman, Mridula Srinivasan and Cisco Werner. Regional scientific advice was generously offered by: John Calambokidis, Jim Darling, John Ford, Pat Gearin, Dawn Goley, Jeff Jacobsen, Sue Moore, Jan Straley and Bree Witteveen. The crew of the NOAA Ship *Reuben Lasker* were extraordinarily helpful and a pleasure to sail with. Daryl Jordan of the Marine Mammal Commission was exceptional in facilitating last minute travel and logistics for Leg 3 scientists. We gratefully acknowledge and thank all participants, including our families and friends.